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| 10/524,225 | 02/09/2005 | Gustavo Deco | P05,0033 | 4105 |

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| EXAMINER | |
|---|---|
| LARYEA, LAWRENCE N | |
| ART UNIT | PAPER NUMBER |
| 3768 | |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/524,225 | DECO ET AL. | |
| | Examiner | Art Unit | |
| | Lawrence N. Laryea | 3768 | |

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *07 May 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *17-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *17-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 February 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *02/9/2005 02/12/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

**Examiner acknowledges Applicant's amendment and remarks filed June 08, 2007.**

Claims 17- 29 and 30 are now pending. The Examiner acknowledges the amendments to claims 17, 28 and 30.

**1. Applicant's arguments with respect to the rejection(s) of claim(s) 17-30 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made.**

### *Claim Objections*

2. Claims 17-30 are objected to because of the following informalities:

Before Claim 17, the phrase "Claim 17 has been amended as follows:" should be deleted.

Before Claim 28, the phrase "Claim 28 has been amended as follows:" should be deleted.

Before Claim 30, the phrase "Claim 30 has been amended as follows:" should be deleted.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 17,20,23-29 and 30 under 35 U.S.C. 102(b) as being anticipated by **Breiter et al (Pub.2002/0058867).**

5. Re Claims 17,23,25,28 and 30: **Breiter et al** teach a system for analyzing neuronal activities in neuronal areas of a living subject **(See Paragraph [0008]-[0010])**, comprising the steps of: obtaining a plurality of signals from spatially distributed neuronal areas of a living subject, each of said signals respectively representing neuronal activity in different ones said neuronal areas; automatically electronically **(See Paragraphs [0041],[0141] and [0116])** forming a matchable coupling **(correlating)** of all of said signals in said plurality of signals using matchable coupling variables that describe a statistical relationship **( See Paragraphs [0010]-[0012],[0043],[045] and Claim 8)** between signals in said plurality of signals that are matchably coupled; automatically electronically determining respective probabilities for occurrence of said signals based on a higher order statistical distribution of the occurrence of said signals; automatically electronically determining said matchable coupling variables by optimizing said probabilities **(See Paragraphs [0096],[0097],[0117],[0118],[0195], [0230],[0246], [0256] ,[0257] and [0098])** and automatically electronically analyzing said neuronal activity using said matchable coupling variables to produce an analysis and making said analysis result available in a humanly perceptible form (Visually, See Figures 7A - 17,[0095]). **(See Abstract, Paragraphs [0014], Figures 1,5A, 5B, 5C, 5D)**.

6. Re Claim 20: **Breiter et al** teach a system comprising optimizing said probabilities using a maximum likelihood estimation technique **(See Paragraphs [0162])**.

7. Re Claim 21: **Breiter et al** teach a system comprising employing a relationship between said statistical relationship and said statistical distribution in optimizing said probabilities **(See Paragraphs [0162])**.

8. Re Claims 24,26,27 and 29: **Breiter et al** teach a system comprising obtaining BOLD signals in said measurement as said plurality of signals **(See Paragraphs [0133], [0247], [0249] and [0251])**

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 18 and 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Breiter et al** in view of **"Cornish-Fisher and Edgeworth expansions"**.

11. Re claims 18 and 19. **Breiter et al** disclose a system for analyzing neuronal activities in neuronal areas of a living subject wherein a statistical distribution is used to analyze the signal data but does not explicitly disclose using Edgeworth expansion as said higher order statistical distribution.

12. **"Cornish-Fisher and Edgeworth expansions"** discloses using Edgeworth expansion as a higher order statistical distribution to analyze data **(See Page 190 of "Cornish-Fisher and Edgeworth expansions")**.

It would have been obvious to one having ordinary skill in the art at the time invention was made to modify a system for analyzing neuronal activities in neuronal areas of a living subject of **Breiter et al** wherein acquired data can analyzed with Edgeworth expansion as a higher order statistical distribution similar to that of **"Cornish-Fisher and Edgeworth expansions"** in order to obtain good approximations distribution of sums of independent, identically distributed random variables and all the appropriately smooth functions.

13. Applicant has not disclosed that "Edgeworth expansion" provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected the higher order statistical distribution of **Breiter et al,** and applicant's invention, to perform equally well with most higher order statistical distribution, would perform or yield the same function of most higher order statistical distribution in order to diagnose brain dysfunctions.

Therefore, it would have been prima facie obvious to modify **Breiter et al** to obtain the same method as specified in claims 18 and 19because such a modification would have been considered a mere design consideration which fails to patentably distinguish over the prior art of **Breiter et al**.

14. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Breiter et al** in view of **Jesmanowicz (Pub. 2001/0056231).**

15. **Breiter et al** teach the claimed invention see supra; however **Breiter et al** does not expressly teach the said signals in said plurality of signals are subject to external influences outside of said living subject, and employing said external influences to determine said statistical relationship.

**16. Jesmanowicz** teaches teach a system for analyzing neuronal activities in neuronal areas (brain) of a living subject, wherein the signals (images) are subject to external influences **(noise)** outside of said living subject, and employing said external influences to determine said statistical relationship **(See Paragraphs [0008], [0024] and [0031]).**

It would have been obvious to one having ordinary skill in the art at the time invention was made to modify a system for analyzing neuronal activities in neuronal areas of a living subject of **Breiter et al** wherein the signals subject to external influences **(noise)** outside of said living subject will be employed to determine a statistical relationship in order to achieve better results during diagnosing procedures.

***Double Patenting***

17. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

18. Claims 17-30 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 19-44 of **U.S. Pub. 2005/0009003** in view of **Deco et al**. Although the conflicting claims are not identical, they are not patentably distinct from each other because they represent alternate variations and groupings.

## *Conclusion*

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence N. Laryea whose telephone number is 571-272-9060. The examiner can normally be reached on 9:30 a.m.-5:30 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eleni Mantis-Mercader can be reached on 571-272-4740. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LNL

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Art Unit 3768